

NCEP usage of OMPS EDR

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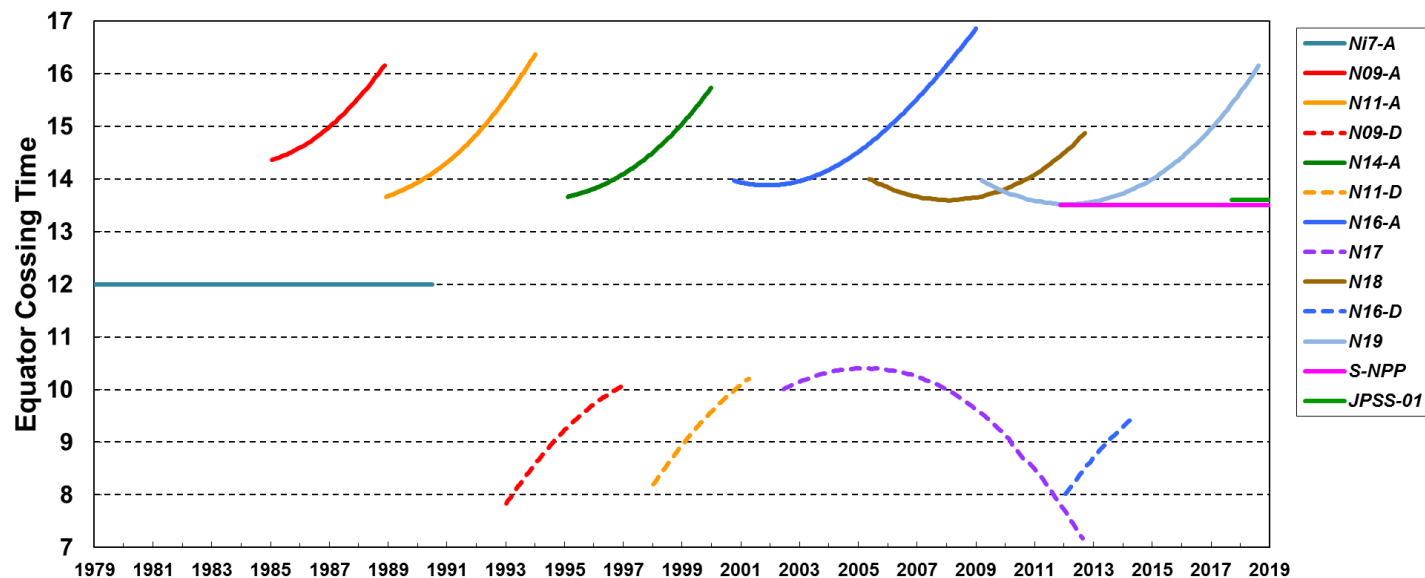
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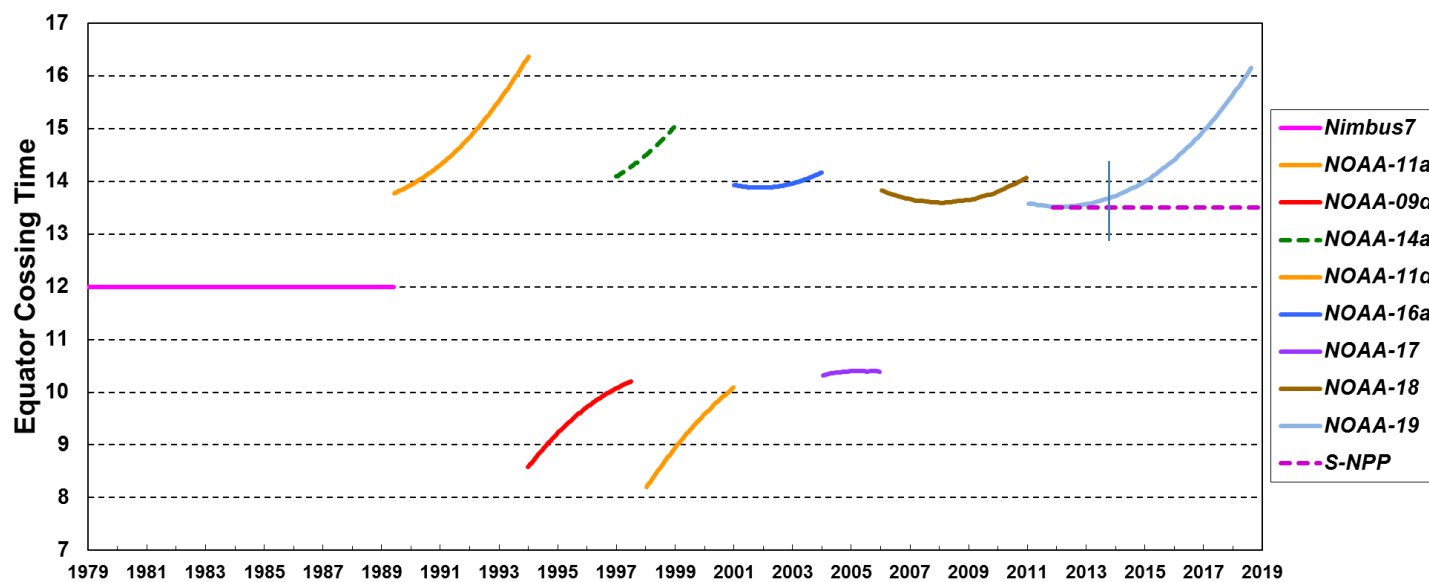
Ozone Monitoring and Data Assimilation

- OMPS-NP extends the climate monitoring initiated using the SBUV(/2)
 - 1979-present : *combining Nimbus-7, N11, N9, N14, N16, N17, N18, N19, NPP*
 - Ozone depletion / Ozone Recovery
 - Effects of climate change on ozone trends at various parts of stratosphere
 - Complete reprocessing is needed when changes made to ozone processing
- Ozone Hole monitoring
 - OMPS stable orbit is welcome compared to drifting orbit of earlier NOAA POES.
 - Addition of Nadir Mapper enhances NOAA's ability to monitor the ozone hole.
- Assimilation into NCEP/Global Forecast System
 - Currently assimilating N19 SBUV/2 profile and NASA OMI total column ozone
 - Large number of OMI's scan positions are unusable.
 - NPP NP and NM v8 products became available in December 2017
 - Monitoring mode
 - Need to replace N19 SBUV/2 (declining area coverage due to orbital drift)
 - NPP LP product test data made available.

Equator Crossing Times of Satellites with SBUV(/2) & OMPS-NM



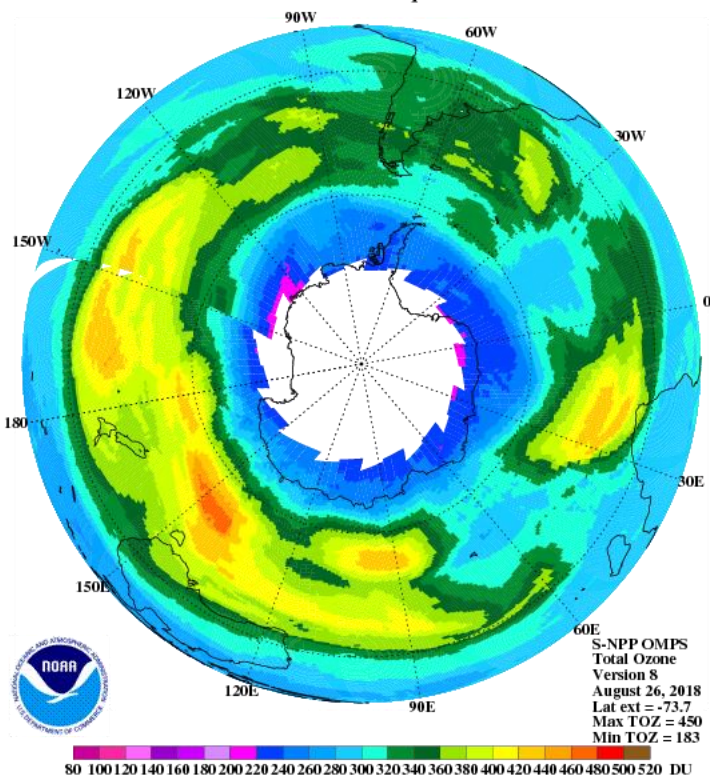
Equator Crossing Times of NASA and NOAA Satellites Used for CDR



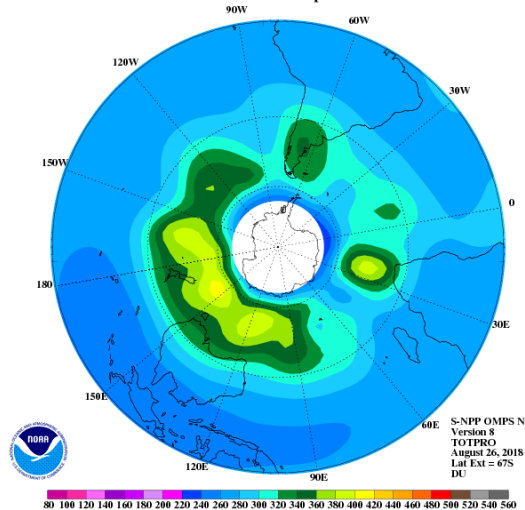
Ozone Product Imagery

Current SH : 67S vs 42S

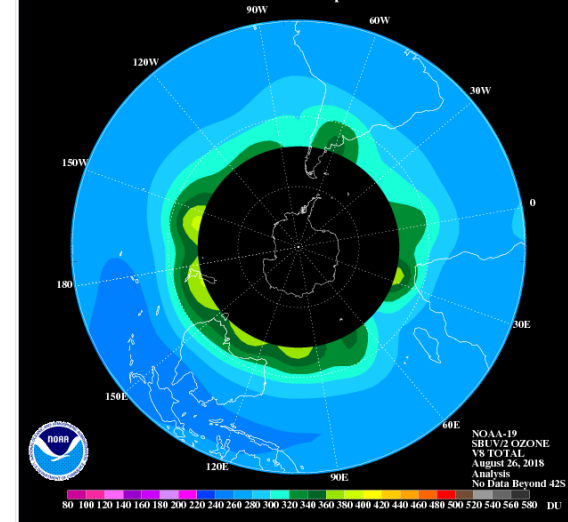
S-NPP OMPS TOTAL OZONE
Southern Hemisphere



S-NPP OMPS TOTAL COLUMN OZONE
Southern Hemisphere

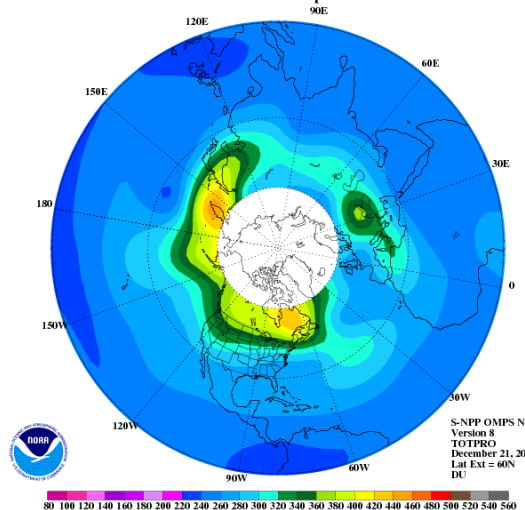


SBUV/2 TOTAL OZONE
Southern Hemisphere

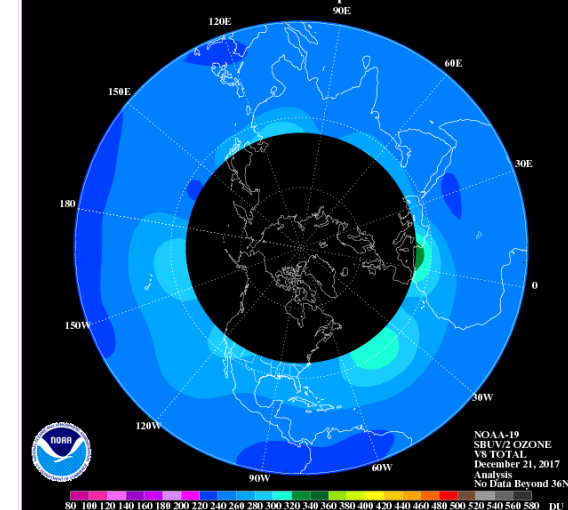


NH Solstice : 60N vs 36N

S-NPP OMPS TOTAL COLUMN OZONE
Northern Hemisphere



SBUV/2 TOTAL OZONE
Northern Hemisphere

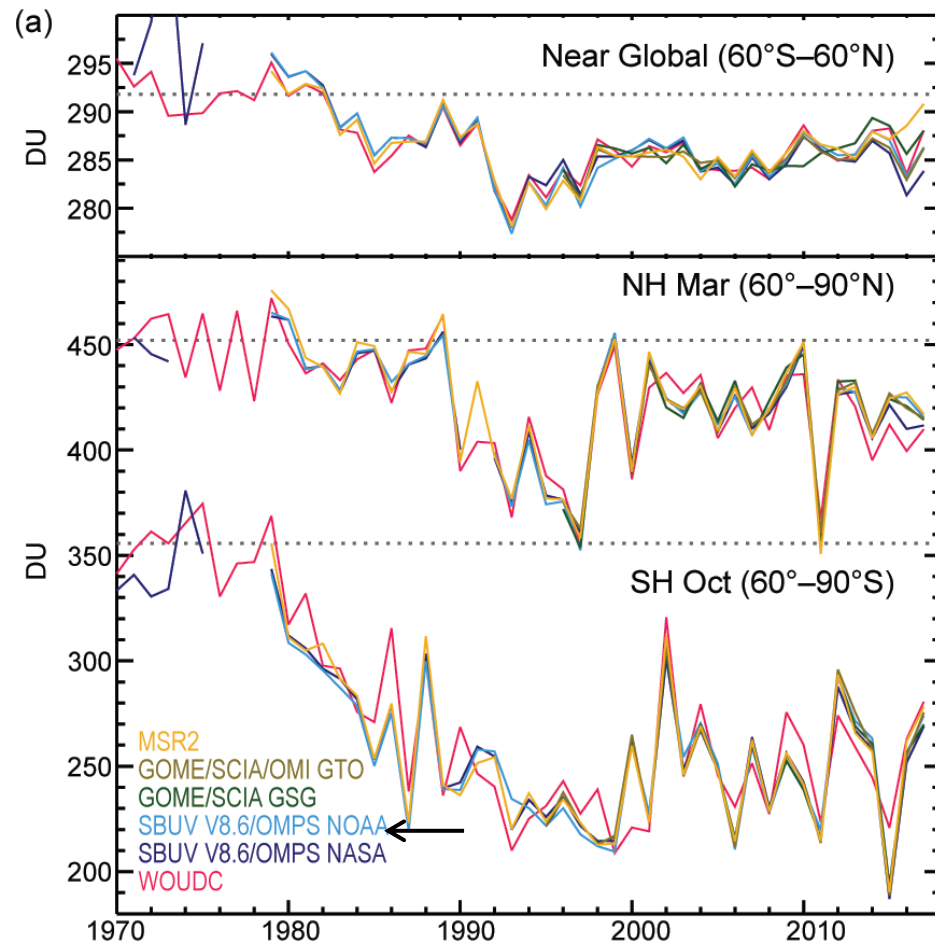


OMPS has greater area coverage
than N19 SBUV/2

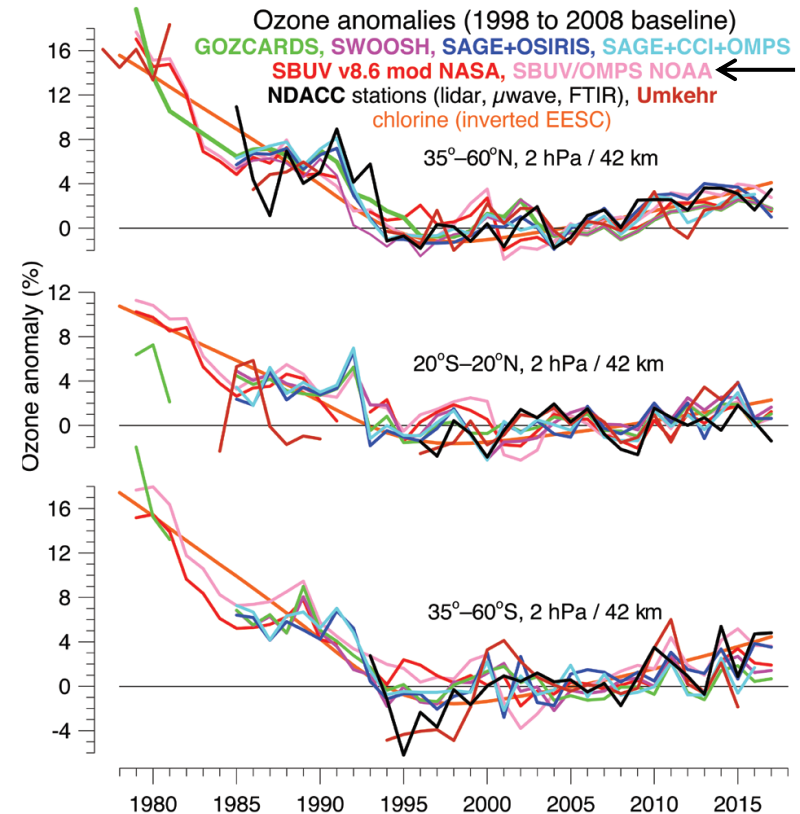
Cressman analyses using NP data

Ozone CDR used in State of Climate Assessment

Total Column Ozone



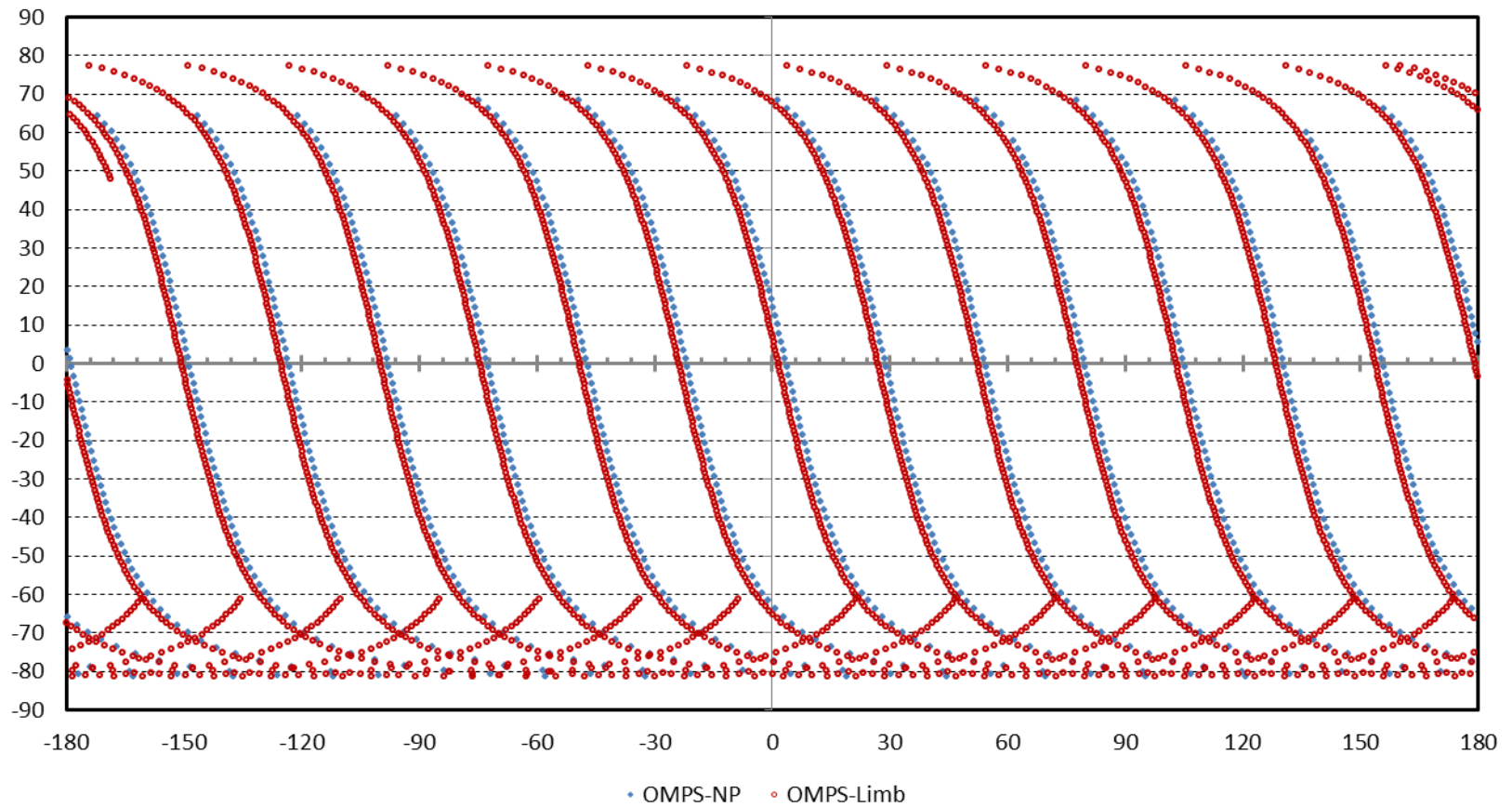
2hPa Ozone mixing ratio



OMPS contribution for data set used here uses NASA products

Lat/Lon locations of Limb and NP profiles

January 23, 2018



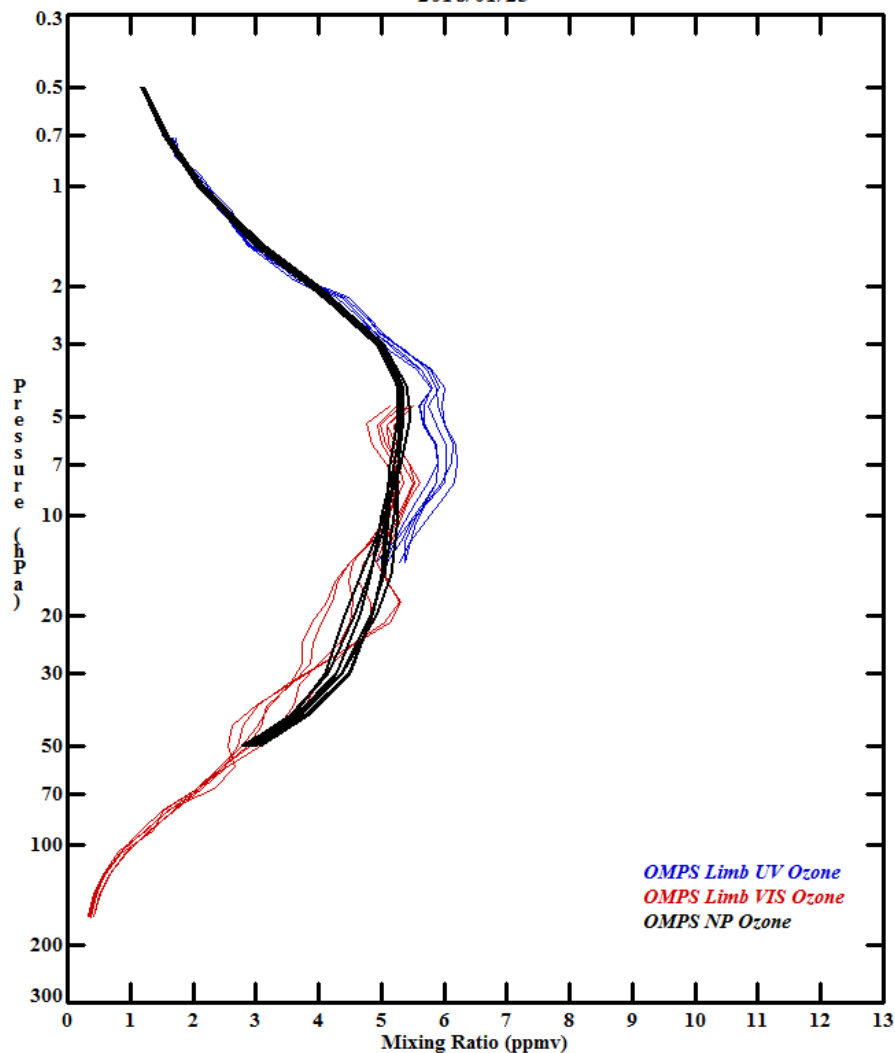
OMPS-Limb (NESDIS) and OMPS-NP v8 ppmv profiles

72S-70S, 90W-90E

32S-30S, 90W-90E

NOAA OMPS-Limb Volume Mixing Ratios (ppmv)

2018/01/23

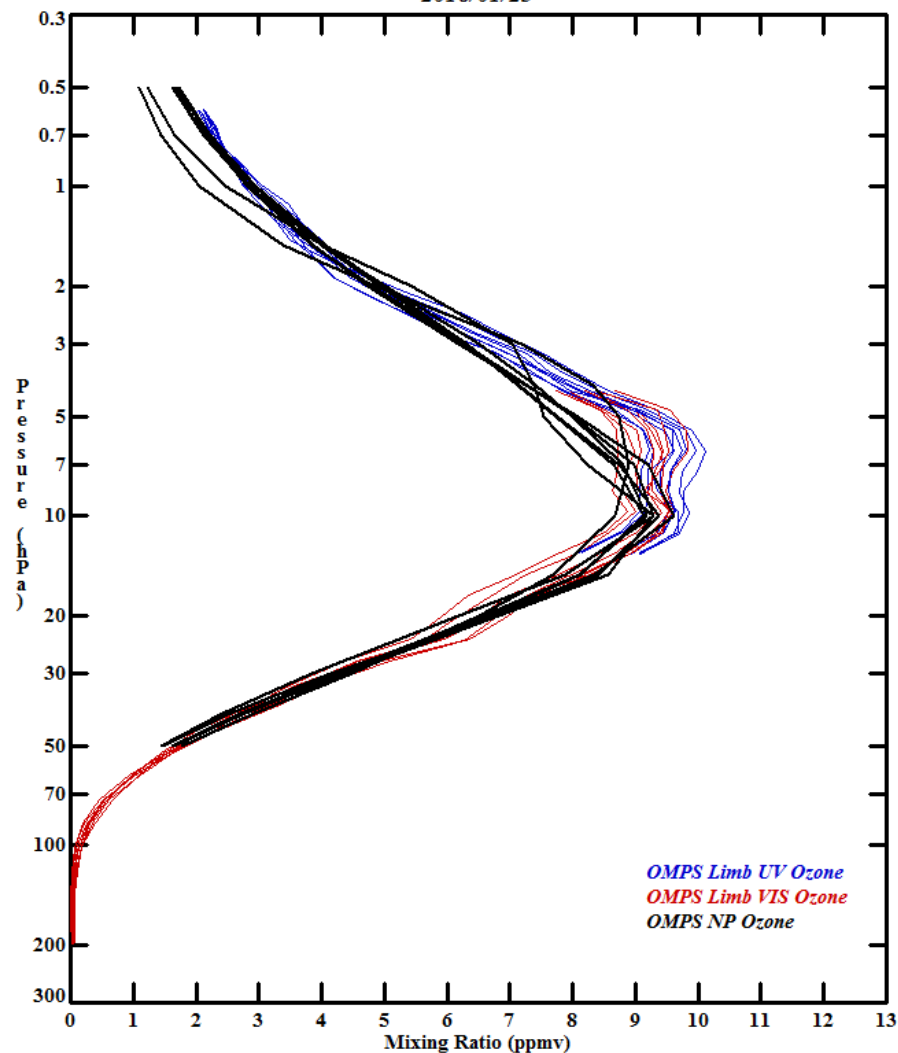


S Lat = -72.0, N Lat = -70.0
W Long = -90.0, E Long = 90.0

Num Limb = 6, Num NP = 7
Start Orbit = 32335, End Orbit = 32338

NOAA OMPS-Limb Volume Mixing Ratios (ppmv)

2018/01/23



S Lat = -32.0, N Lat = -30.0
W Long = -90.0, E Long = 90.0

Num Limb = 8, Num NP = 7
Start Orbit = 32333, End Orbit = 32338

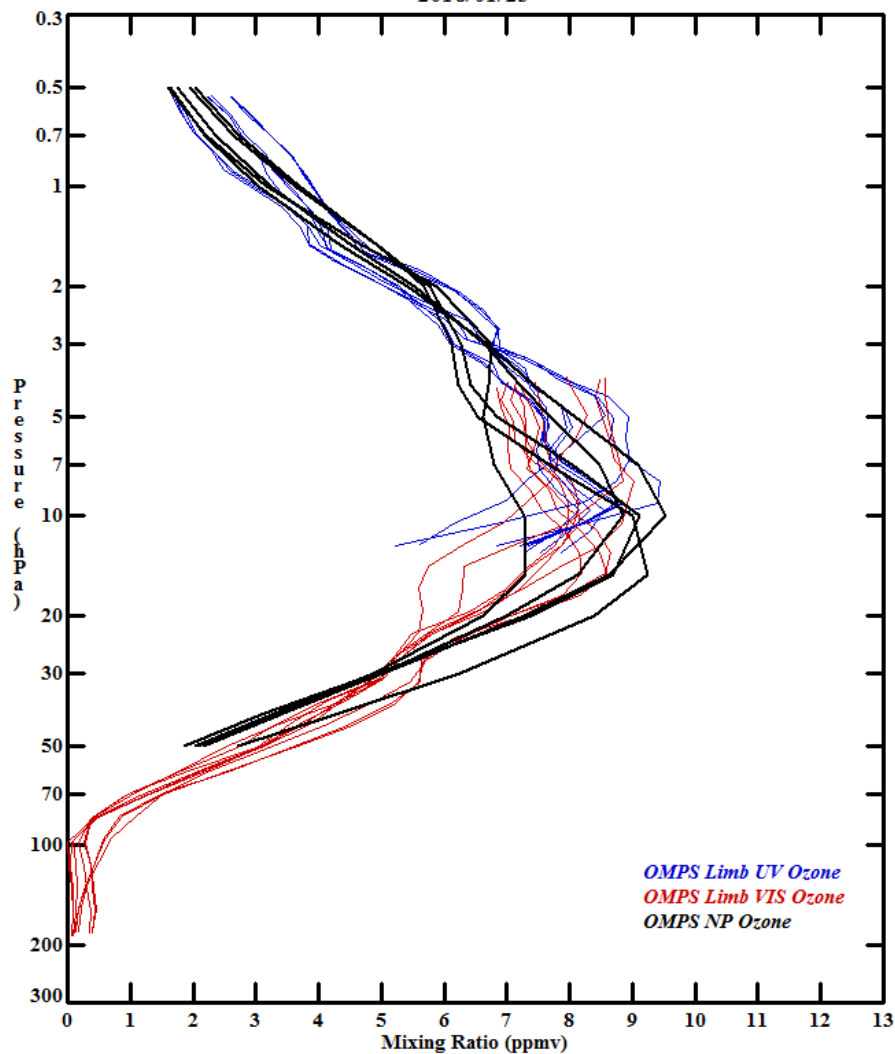
OMPS-Limb (NESDIS) and OMPS-NP v8 ppmv profiles

30N-32N, 90W-90E

60N-62N, 90W-90E

NOAA OMPS-Limb Volume Mixing Ratios (ppmv)

2018/01/23

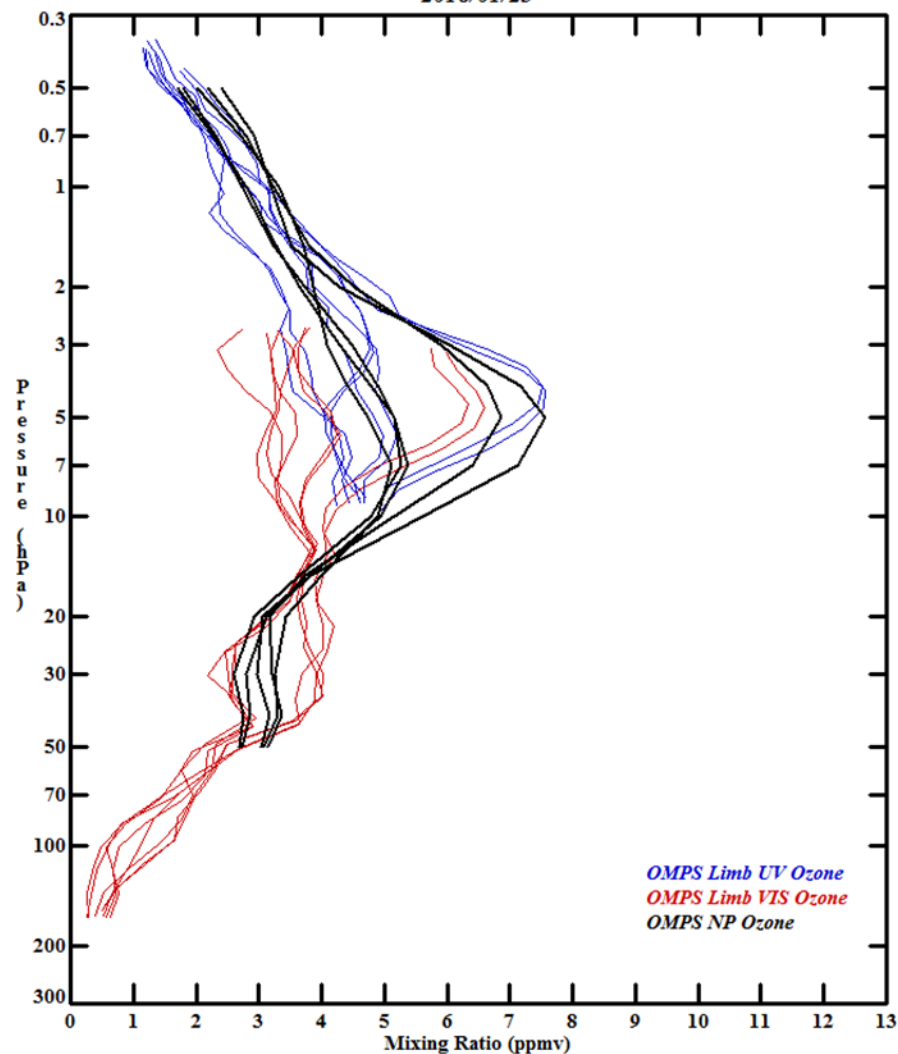


S Lat = 30.0, N Lat = 33.0
W Long = -90.0, E Long = 90.0

Num Limb = 9, Num NP = 5
Start Orbit = 32333, End Orbit = 32338

NOAA OMPS-Limb Volume Mixing Ratios (ppmv)

2018/01/23



S Lat = 60.0, N Lat = 62.0
W Long = -90.0, E Long = 90.0

Num Limb = 8, Num NP = 5
Start Orbit = 32332, End Orbit = 32338

Summary

- NCEP/CPC (*along with other international users*) utilize OMPS-NP, NM (and LP) products for monitoring on various time scales.
- NCEP/EMC utilizes the same for weather model assimilation.
- S-NPP, N20 and future JPSS satellites in stable orbit
 - No loss of observations due to satellite drift
- Reprocessing needed for entire data sets for use in CDR
 - Mid-January 2019
- Hope to assimilate S-NPP OMPS products within the year.
- Evaluate OMPS-Limb this year (*when BUFR products come from NDE*)
- Will evaluate N20 products when those become available.
- Ozone from NCEP GFS used to generate **UV Index** forecasts and for **Stratospheric Intrusion** monitoring/forecasting.